

d.) Remarks

In the instant Office Action of April 26, 2005, all rejected claims stand rejected under §103 over an omnibus core combination of the Manfredi, Earl, Hall, and Cavanagh references. Manfredi describes a mobile launching vehicle for supporting a rocket assembly having detachable wings, and is adapted to enable horizontal take-off of the rocket assembly without necessitating the weight of landing gear. That is, the rocket assembly propels itself and the mobile launching vehicle along a runway until aeronautical lift-off speed is attained, whereafter it separates from the mobile launching vehicle and flies upward to gain optimal altitude. Thereafter the wings are jettisoned and the rocket accelerates to attain orbital velocity. Note that the mobile launching vehicle is not in itself powered; rather, it relies on the engines of the space vehicle.

The Earl reference is cited in combination with Manfredi, allegedly to show a self-powered mobile launch vehicle for supporting an aircraft during take-off. In particular, the rejection points to Earl, col. 3, lines 27-37. A close reading of this reference clarifies that the mobile launch vehicle (referred to as a sled) of Earl does not provide the alleged teaching. Although the sled does support a fan-jet engine 62, its function is described only in terms of driving a blower to supply air to the air cushion cells 24 and 32 that are necessary to support the assembly as it travels over rough surfaces, such as a bombed runway or the like. The fan-jet is not used to power the aircraft for horizontal take-off purposes.

Note Earl, col. 1, lines 28-31: “The sled-aircraft combination is then **powered by the aircraft engine(s)** into aircraft take-off run regime without handicap by the roughness of the damaged runway.” The aircraft engines provide the thrust, not the sled

fan-jet. Note also col. 1, lines 47-52: **“Following aircraft separation from the sled, the excess air cushion supply of pressurized air then available from the sled-mounted engine blower is utilized to directionally control the sled retrieval operation.”** This statement clarifies the use of the discharge ducts control valves 66, which are used to provide directional control of the sled following aircraft liftoff, when the air cushion lift is no longer necessary and the blower output may be vented from valves 66. This interpretation is confirmed by the statement in claim 1, lines 42-48: **“...each nozzle having independently operable closure means for constraining the pressurized air to be fed to said cells when the closure means is closed and for by-passing flow of air to said cells and allowing it to pass through the nozzle when the closure means is open for use in directional control of the travel of said sled following aircraft (sic) separation; ...”** Clearly, the closure means function to supply air to the air cushion cells during take-off, and to supply the nozzles only after the aircraft has left the sled. The nozzles do not power the sled for take-off purposes. Thus the combination of references that relies on Earl to teach a powered mobile launch vehicle fails to provide a teaching sufficient to sustain the rejections based on that combination.

The Cavanagh reference is cited to show the use of turbojet or fan jet engines in a ground support vehicle. Cavanagh actually describes a ground transport system that employs an air cushion vehicle having an inverted U shape that travels in a guide channel having a W configuration. There is no teaching of a mobile launch support vehicle, in fact no aeronautical use at all, and this teaching, when combined with Earl, does not teach nor suggest the powered launch support vehicle of the present invention.

The teaching of the Hall reference, cited for a showing of a lifting body in a spacecraft, is acknowledged. However, it is a component of a combination of references that fails to teach the claimed invention, due to the insufficiencies of the Earl reference and the lack of relevance of the Cavanagh ground freight system.

Some of the claims have been amended to point out more clearly the unique and patentable features of the invention. For example, claim 2 has been amended by adding the statement that the turbojet engine of the ground-based vehicle is operated to accelerate the vehicle and spacecraft horizontally to takeoff speed. This recitation is in direct contrast to the Earl reference, which provides a fanjet in the air cushion vehicle that does not provide any horizontal acceleration during takeoff acceleration. Therefore it is asserted that claim 2 is now allowable.

Claim 4 has been amended to incorporate the recitations of claims 2 and 3, in recognition of the stated allowability of claim 4 in the instant Office Action. Thus claim 4 is now allowable.

Claim 6 has been amended to state that the ground-based vehicle has at least one turbojet for accelerating the ground-based vehicle and spacecraft to achieve aerodynamic takeoff speed. As with claim 2, this recitation is in contradistinction to the Earl reference, which does not have an engine for accelerating the ground-based vehicle. Thus claim 6 is allowable, as are claims 7-25 which depend therefrom. Note that the substance of claims 20 and 21 has already been indicated as allowable in the instant Action.

Independent claim 26 has been amended with the addition of a recitation regarding the unitary replaceable belly assembly that forms the continuous bottom

surface of the main body section and the wings. This recitation was contained in old claim 27, now canceled. This feature is a significant element in making the spacecraft reusable. It is noted that the rejection of the instant Office Action makes no mention of this important feature, nor is there any prior art cited to reject it. Therefore it is asserted that claim 26 defines the invention over the prior art and should be allowed. Likewise, claims 28-32, which depend from claim 26, are also allowable.

Claim 33 has been amended to be independent by including the substance of old claim 26 and original claim 32. In particular it recites the main body section and laterally opposed wings of the spacecraft, and the pair of vertical stabilizers extending vertically from an outboard portion of each wing. It further recites a pair of elevons, each extending from one of the vertical stabilizers to the main body section. (see Figures 1 and 2, components 30 and 32.) There is no teaching of the elevon structure in the prior art, and in accordance with the indicated allowability of old claim 33, the amended claim 33 should now be allowable.

It is believed that all claims now submitted for examination are allowable, and that this application is in condition to be passed to issue. If there are any questions that arise in connection with this amendment, or anything else related to this application, the examiner is invited to telephone the undersigned attorney and attempt to wrap up the prosecution of this application at an early date.



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